

IU CCR Methodologies

Market European Stakeholder Committee

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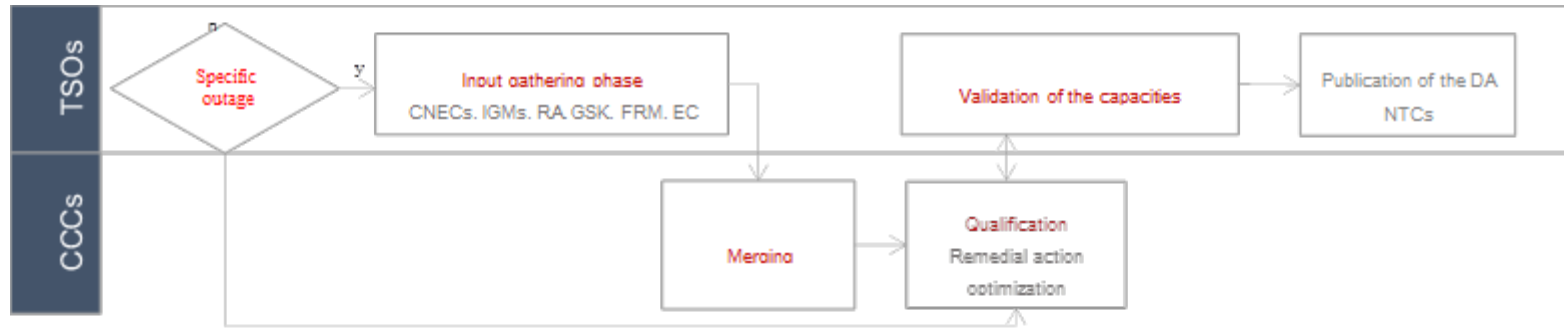
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Capacity Calculation Methodology - Conceptual Framework

- IU day-ahead and intraday capacity calculation methodologies need to define cross-zonal capacities and allocation constraints for the different HVDC interconnectors
- The bidding zone border for the IU CCR consists of controllable HVDC interconnectors
- Due to the independent nature of the HVDC interconnectors, they are capable of being operated independently, a CNTC approach has been taken

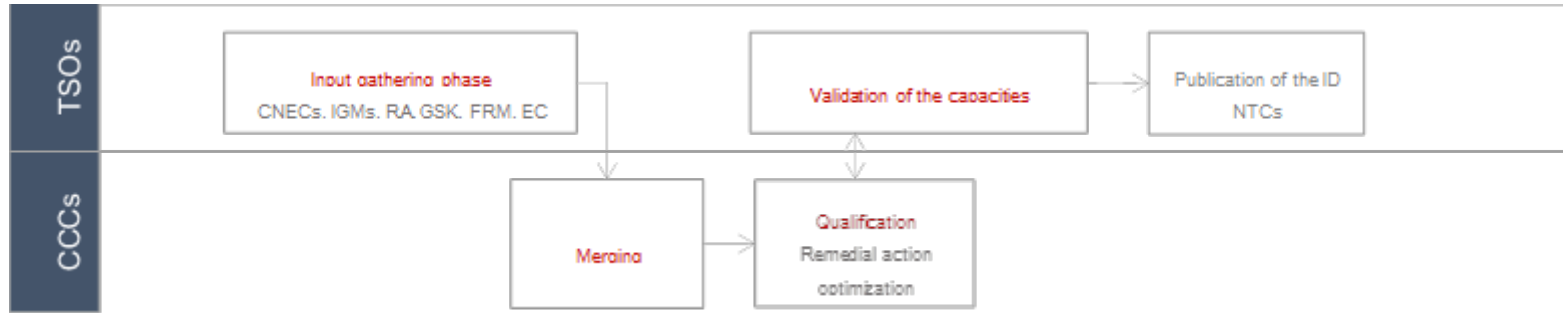


Day-ahead cross-zonal capacity calculation



- The day ahead capacity calculation shall be composed of the input gathering phase, qualification phase and the validation phase
- The cross- zonal capacity will be calculated as the MPTC value unless specific planned or unplanned outages exist in one bidding zone.
- In this case the cross-zonal capacity for each day-ahead market time unit may be calculated using the CGMs developed according to the Common Grid Model Methodology.

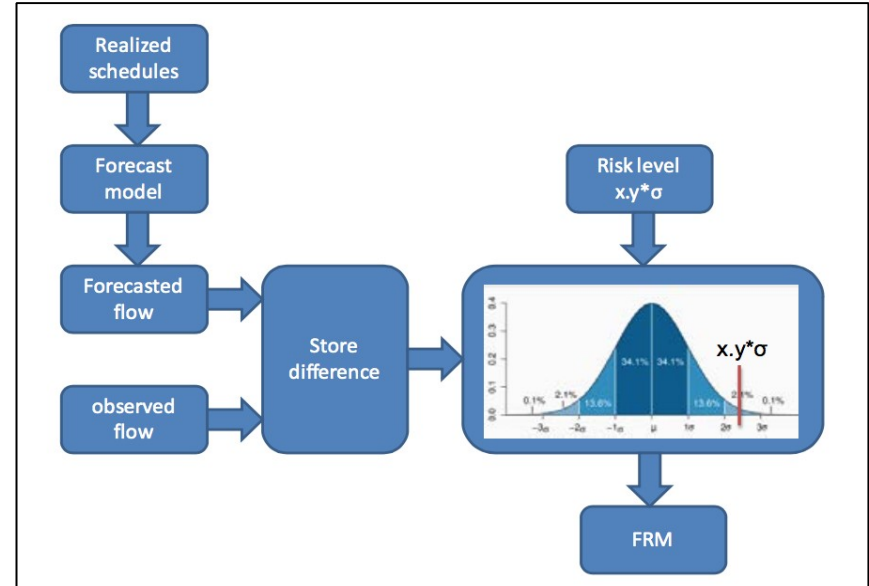
Intraday Cross- zonal capacity Calculation



- Cross-zonal capacity for each interconnector and for remaining intraday market time units shall be calculated using the coordinated net transmission capacity approach using the latest CGMs
- TSOs will have to provide all the required input data: Individual Grid Models (IGMs) list of Critical Network Elements (CNECs), Flow Reliability Margins (FRMs), available remedial actions, the generation shift key (GSK) and external constraints. These inputs will be provided for each remaining hour of the day
- The CCC shall merge the IGMs to generate the CGMs and shall perform the qualification of the NTCs using remedial action optimisation based on a binary approach.

Flow Reliability Margin

- The FRM is performed by comparing the power flows on each CNEC of the CCR
- All differences for a defined time period are assessed and probability distribution is obtained. A risk level is applied yielding the FRM values for each CNEC.
- The FRM values are for a given time period which is defined by the frequency of the FRM determination process.



Qualification Phase (RAO)

Remedial Action Optimisation (RAO)

- A RAO will be used which has an objective function to ensure that the margin of CNECs is positive
- Mandatory inclusion of non-costly RAs, optional inclusion of costly RAs
- The objective function of the RAO tool for the IU region is to increase margins of all CNEC until a positive value is reached
- ROA will take into account remedial action usage rules in the process



Validation Phase

Rejection

- Deemed acceptance principle will be applied
- In both DA and ID, TSOs have the possibility to reject proposed NTCs/ATCs, BUT only in the case of unforeseen events during the qualification phase
- Rejection shall be motivated and monitored and shall be accompanied by acceptable reduced value

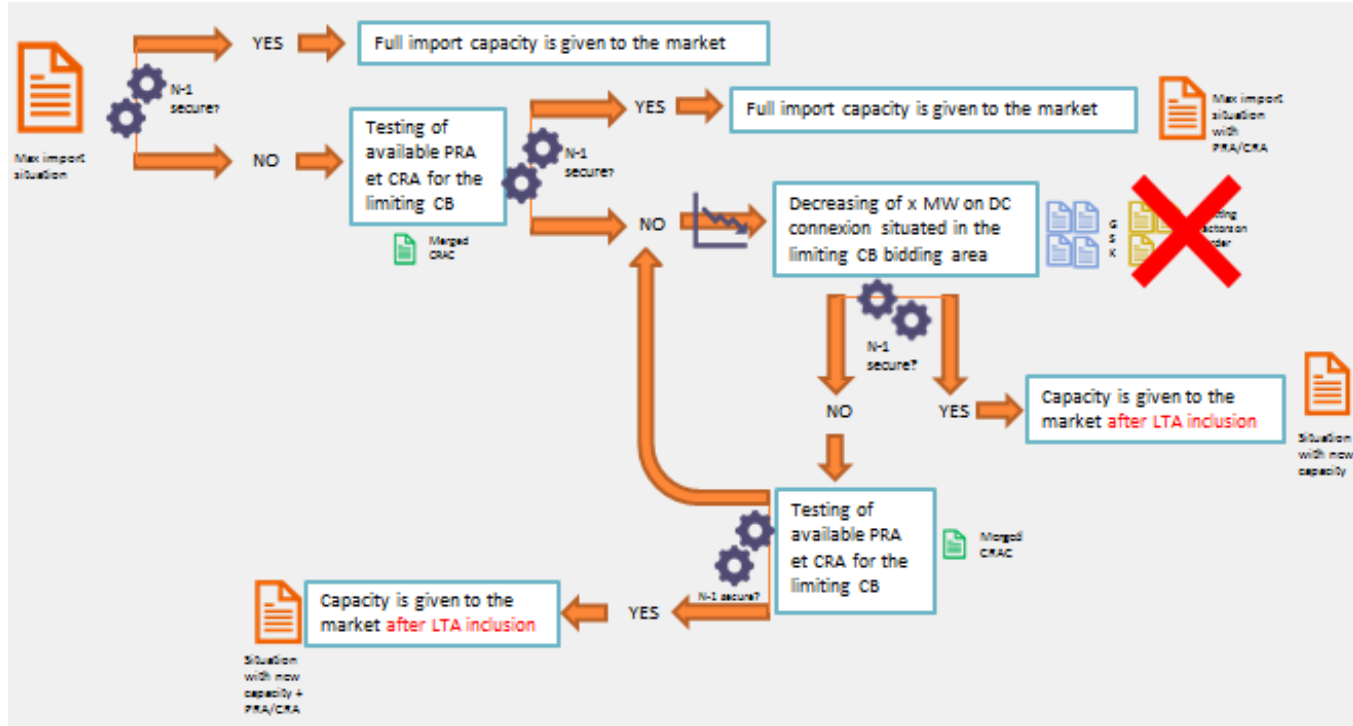
Differences Between Channel and IU

Channel and IU methodologies are very similar. Differences between the IU and the Channel methodology proposals are listed below.

The IU proposal includes;

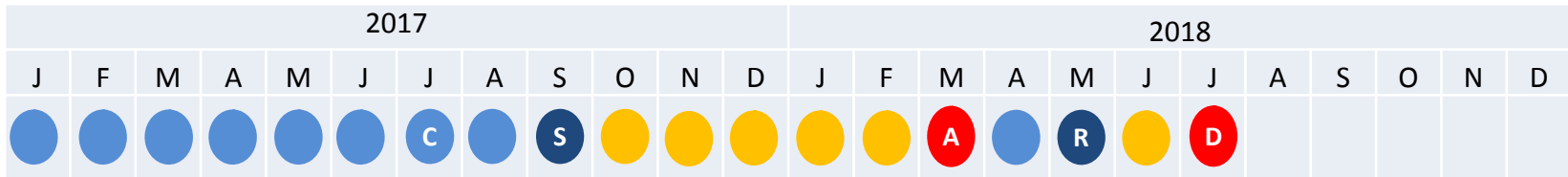
- The **firm capacity value** as specified in relevant connection agreements is referenced [see Article 4]
- TSOs are required to make available **costly remedial actions** which are reasonable, efficient and proportionate [see article 11]

DA computation methodology



IU Capacity Calculation Methodology - status

- Public consultation in July 2017
- Shadow Opinion received in August 2017
- Submitted to IU NRAs in September 2017
- NRAs request for amendments in March 2018
- Re-submitted to NRAs in May 2018
- NRAs Decision expected in July 2018



Redispatch & Countertrading Methodology

- Countertrading is considered as a measure with the objective to relieve physical congestions between two bidding zones, where the precise generation or load pattern alteration is not pre-defined.
- The cross zonal exchange is materialized with the change of flow on the HVDC Interconnectors of the IU bidding zone border. It is this action that relieves the physical congestion.
- This SO-SO trade leads to an imbalanced situation on both control areas that must be tackled by compensation actions (defined as “RD and CT Actions” in Article 2 of the Proposed IU RD and CT Methodology) where the value is also identical to the SO-SO trade.
- In the specific case of HVDC interconnectors, the alteration of the particular generation and/or load pattern is materialized directly by the change of flow on the IU Interconnector. It is this action that partly relieves the physical congestion. It leads to an imbalanced situation on both control areas that must be tackled by the RD and CT Actions in each bidding zone.

Redispatch & Countertrading Methodology

Resources for countertrading and redispatching, timeframe of application

Four different timeframes should be considered for Coordinated Redispatching and Countertrading, :

- a.** Period 1 is considered in case of Coordinated Redispatching and Countertrading activation between the start time mentioned in Article 5(1) and the deadline for the “Input Data Gathering” phase of the Intraday Capacity Calculation of the Intraday Capacity Calculation;
- b.** Period 2 is considered in case of Coordinated Redispatching and Countertrading activation between the “Input Data Gathering” and the “Validation” phase of the Intraday Capacity Calculation;
- c.** Period 3 is considered in case of Coordinated Redispatching and Countertrading activation after the “Validation” phase of the Intraday Capacity Calculation and before the RSC Coordination Deadline; and
- d.** Period 4 is considered in case of Coordinated Redispatching and Countertrading activation after the RSC Coordination Deadline and before the Interconnector Countertrading Deadline.

Redispatch & Countertrading Methodology

Cross-border relevance for cost sharing

- The cost of a RDCT is composed of the following:
 - a) RDCT Action cost/revenue in the CA of the Requesting TSO
 - b) Cost/revenue incurred by the Facilitating TSO – impact of the SOSO trade on its imbalance/losses

Redispatch & Countertrading Methodology

Consideration of dependencies with Article 76 of SO GL

As RD and CT Action is considered as making part of the RDCT Remedial Action in IU, the concept of cross-border impact as defined in the methodologies developed in accordance with Article 75/76 SO GL also apply. If a RD and CT Action has a cross border impact as defined in the methodologies developed in accordance with the Article 75/76 of SO GL, then the RSC must be included in order to analyse the effect on neighbouring control area's.

Redispatch & Countertrading Methodology – Cost Sharing

Principles Explained

- Total cost of coordinated Redispatching and Countertrading will be determined transparently by summing the costs/incomes of Participating TSOs involved in Countertrading. The details and procedures of this total cost of coordinated Redispatching and Countertrading calculation process will be described in the relevant RD and CT Procedures that will be established during the implementation phase.
- The costs and incomes considered for Countertrading and Redispatching are:
 - a) Charges for RD & CT Actions, incurred by the Requesting and Assisting TSOs;
 - b) Charges related to the change of flow for Countertrading and Redispatching purposes, incurred by the Facilitating TSO.
- The Requesting TSO will incur the total cost of coordinated Redispatching and Countertrading

Redispatch & Countertrading Methodology – Cost Sharing

Reporting of Cost Sharing Methodology

- In line with the REMIT Regulation, all coordinated Redispatching and Countertrading will be reported within 1 hour from the activation of the coordinated Redispatching and Countertrading.
- Coordinated Redispatching and Countertrading volumes and costs are to be reported according to the Transparency Regulation in order to monitor the use of remedial actions with costs. This mechanism will allow the assessment of impact of the remedial actions based on operational security and economic criteria in accordance with Article 74(5) (c) of CACM Regulation.

IU Redispatch & Countertrading Methodology - status

- Submitted to IU NRAs in March 2018
- NRAs Request for Amendment/Decision expected in September 2018

